1973

Maine Gems and Gem Minerals

Maine State Museum

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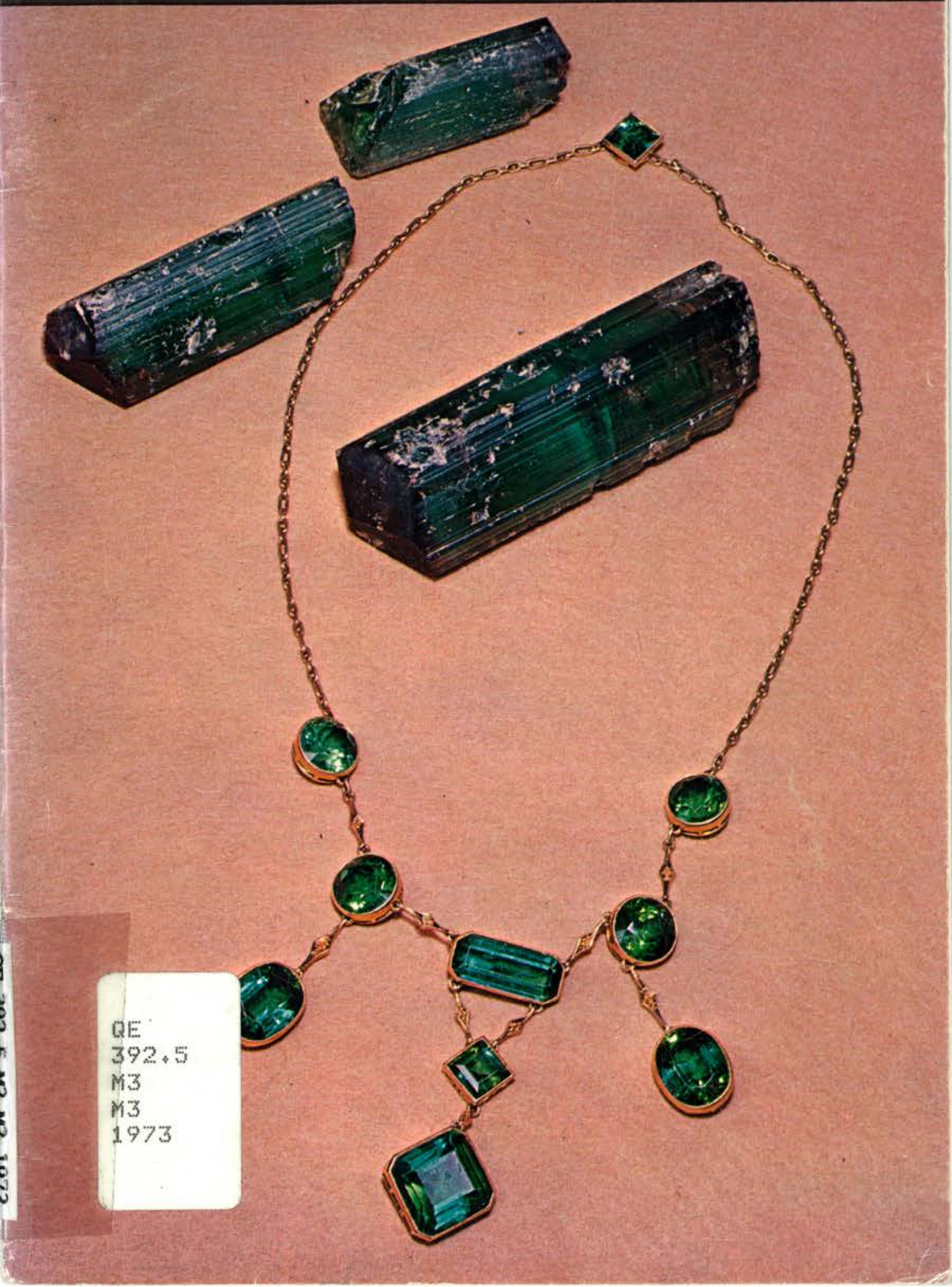


THE COVER

The cover illustration features the Peary Necklace, an outstanding piece of jewelry which was presented by polar explorer Robert E. Peary to his wife as a birthday present in 1913.

The ten gemstones, having a total weight of 73.5 carats, are green tourmalines from Auburn's Mount Apatite. The stones, which were mined and cut by Mr. John Towne of Brunswick, are set in gold panned from the Swift River in the Byron-Houghton area by Mr. Perley Whitney. The setting was created by Carters Brothers Jewelers of Portland.

Mrs. Peary, who wore the necklace to many social functions in Washington, D.C., often received compliments regarding her "beautiful emerald necklace". She is reported to have replied, on at least one occasion, that anyone could have an emerald necklace, but that it was her unique privilege to wear a necklace of Maine tourmaline set in Maine gold.

This necklace was presented to the Maine State Museum in the mid 1960s; the gift of Admiral Peary's daughter, Mrs. William Kuhne of Brunswick.

Also illustrated are three color-zoned tourmaline crystals, mined at Mount Mica, near Paris Hill in the 1800s; from the collection of the Harvard University Mineralogical Museum.

FOREWORD

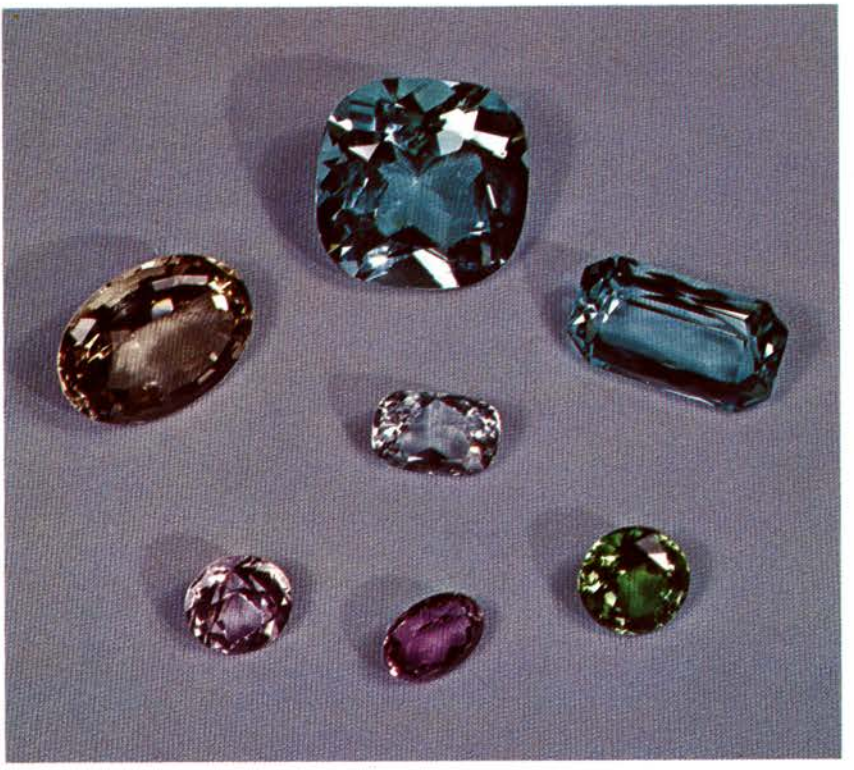
The mining of gemstones has been going on in Maine for as long as there has been a State of Maine. The first documented discovery of gemstones (tourmalines) in Maine took place in 1820, the very year in which Maine gained its independence from Massachusetts and became the twenty-third State of the Union.

Today, the long tradition still continues, and new gemstone discoveries have been made within the past year whose importance rivals any in North American history.

It is ironic that most of the finest of gemstones mined in Maine during the past century and a half have found their way into institutional and private collections outside of the State; with the result that students of mineralogy in the rest of North America and in Europe may be more familiar than Maine's own residents with the mineral beauty that lies beneath the hills of the Pine Tree State.

The Maine State Museum is proud to have assembled an unprecedented exhibition of outstanding "Maine Gems and Gem Minerals" drawn from the inventories of leading collections throughout the United States and in Europe. It is our hope that these specimens, many of which have never before been displayed in the State, will help to convey Maine's sense of pride in the rich heritage of this land that is ours.

The interior of a large gem pocket, discovered at Newry in 1972, is shown here. Dark crystals of green tourmaline contrast sharply with the light-colored quartz and feldspar (cleavelandite) "pocket gravel".



OUTSTANDING FACETED MAINE GEMS:

(clockwise, from top center)

a) Aquamarine beryl, 133.75 carats, cut from a crystal found in 1881 by a farmer near Sugar Hill, Stoneham; exhibited at the Columbian Exposition in Chicago, 1892-3; from the collection of the Field Museum of Natural History.

b) Aquamarine beryl, 76 carats, cut from material mined at Topsham; from the collection of the Harvard University Mineralogical Museum.

c) Verdelite tourmaline, 21.07 carats, recently cut from material mined in the 19th century at Mount Mica near Paris Hill; from the collection of the U.S. National Museum of Natural History.

d) Amethyst quartz, 13.1 carats, cut from material mined at Deer Hill, Stow; from the collection of the U. S. National Museum of Natural History.

e) Morganite beryl, 18 carats, cut from material mined at Mount Apatite, Auburn; from the collection of the Harvard University Mineralogical Museum.

f) Smoky / Citrine quartz, 82 carats, cut from material collected at the Whispering Pines quarry in South Paris; from a private collection.

g) (center) Aquamarine beryl, 29.6 carats, cut from the same crystal as "a"; from the collection of the Field Museum of Natural History.

AN INTRODUCTION TO THE GEMSTONES OF MAINE

A broad range of natural processes, operating through some 500,000,000 years of geological history have produced an unusually wide variety of rock types in Maine. The mineral grains and crystals that make up these rocks are of a correspondingly wide variety. More than 200 different minerals have been found in the rocks of Maine, including both common varieties and extreme rarities found only in a few places on the face of the earth. Among the minerals of Maine are at least a dozen varieties that can be classified as gemstones.

Gemstones are minerals whose color or clarity makes them visually attractive, whose rarity is sufficient to lend them an element of value, and whose hardness makes them durable enough to survive many years of wear in rings, pins, necklaces or other items of decorative jewelry.

Maine's best known gemstones include tourmaline, beryl, quartz-family minerals, and topaz. Less familiar varieties which have been found as gem-quality crystals include amblygonite, apatite, beryllonite, chrysoberyl, garnet, phenakite and pollucite.

Most of Maine's gemstones are found within open cavities or "pockets" in a coarse-textured granite-like rock known as pegmatite. Maine's gem-bearing pegmatites are localized chiefly within a discontinuous zone extending southeastward from the New Hampshire border near Umbagog and Richardson Lakes to the Atlantic coast near the mouth of the Kennebec River.

These rock masses are thought to have formed between 300,000,000 and 200,000,000 years ago, during the Paleozoic era. At this time the area that was to become the State of Maine underwent a series of dramatic geological changes. "Sedimentary" rocks, formed from mud and sand that accumulated beneath quiet sea waters which had covered the area for many millions of years, were deformed by folding and fracturing; transformed by heat and pressure into new rocks of the "metamorphic" variety; and intruded by great masses of melted rock material from deep within the crust of the earth. The slow cooling and hardening of this molten material gave rise to a variety of "igneous" rocks, including granites and pegmatites. The formation of cavities or "pockets" in pegmatites, and the formation of gem minerals within these cavities, are thought to have resulted from the movement of hot solutions through the already hardened rock.

Somewhat different geological conditions have produced a contrasting variety of gemstones in easternmost Maine. There, at about the same time that some of the gem-bearing pegmatites were forming farther to the west, great volumes of molten rock material were being poured out onto the land and into the sea in the form of volcanic lava. Bubbles of steam and other gasses trapped within the cooling lavas formed cavities in the rock. Later, water moved through the lavas, dissolved silica from the rock, and deposited it in these cavities to form several gem varieties of chalcedony (such as jasper, agate, chrysoprase, bloodstone) and quartz (such as rock crystal, smoky quartz, amethyst, citrine).

The color variations of Maine tourmaline, and the unique property of strong color contrasts within a single crystal are illustrated in this photograph. The three larger elongated specimens are tourmaline crystals (from Mount Mica, near Paris Hill), which show a longitudinal color transition. The two large specimens of roughly triangular shape are crystal cross sections (also from Mount Mica) which show a concentric color-zoning.

The smaller crystal sections and fragments, showing a range of blue and green hues, are from Mount Apatite at Auburn. The larger specimens are from the collections of the Harvard University Mineralogical Museum and the U. S. National Museum of Natural History.

TOURMALINE:

Tourmaline $[(Na(Mg, Fe, Mn, Li, Al)_3Al_6(Si_6O_{18})(BO_3)(OH,F)_4]$ is the undisputed king, queen and patriarch of Maine's gem minerals. First found in Maine at Mt. Mica near Paris Hill in 1820, tourmaline was accorded recognition as Maine's official "State Mineral" by an act of the 105th Legislature in 1971.

Although black tourmaline ("schorlite") is a common mineral in many Maine rocks, the translucent gem varieties are restricted in occurrence to the pegmatites of western Maine. The gem varieties of tourmaline found in Maine include pink to rose-colored "rubellite", green to blue-green "verdelite", light to dark blue "indicolite", and colorless "achroite".

The gem tourmalines, unlike the common black variety, are usually rich in lithium. The most familiar gem tourmaline colors, pink and green, are thought to be caused by the presence of minute amounts of manganese or ferrous iron, respectively.

Tourmaline is one of the few gem minerals that characteristically shows a varied depth of color within a single specimen as the viewing angle changes. It is the only gem mineral that may show drastic color contrasts (e.g. both green and pink; or a green to pink to blue gradation) within a single crystal. Occasionally, these color gradations may take the form of concentric zones; giving rise to such distinctive color patterns as "watermelon" (a pink crystal core surrounded by a green "rind") or "cucumber" (a colorless core, surrounded by green).

Some of the finest Maine tourmalines were mined during the 19th century at Mt. Mica, near Paris Hill. Many of these specimens found their way into leading European royal collections and museums, where they remain to the present day. Other outstanding 19th century specimens are to be found in leading American museum collections; most notably those of the Smithsonian Institution in Washington, D.C., the American Museum of Natural History in New York City, and the Harvard University Mineralogical Museum at Cambridge, Massachusetts.

In the 20th century, Mt. Mica has continued to produce fine tourmaline gems, but other occurrences have also been discovered and have risen to national and worldwide reputation among collectors and mineralogists. The Harvard Mine at Greenwood, the Mines of Mt. Apatite at Auburn, Mt. Rubellite at Hebron, and the Dunton Mine at Newry are but a few of the Maine localities that are mentioned prominently in published references to the world's outstanding gem tourmaline occurrences.

A new discovery in 1972 at the long-abandoned Dunton Mine at Newry has produced what may well be the greatest volume of gem material and the largest individual gem tourmaline specimens ever found in Maine. Mining operations at Newry are continuing at the time of this publication, and the final results are still to be determined. Perhaps the single most spectacular specimen from the current mining operation will prove to be the 11-pound green crystal (measuring approximately 11 inches in length and 4 inches in diameter) which has been presented to the Smithsonian Institution in Washington, D.C., by the International Paper Company, owner of the Dunton Mine property.

This 30-pound crystal section, measuring approximately 10 inches in length and 10 inches in diameter, was mined at Mount Mica, near Paris Hill, in 1951. The upper surface of the crystal as shown in this photograph (a natural "basal termination") contains much translucent gem-quality material. This unusually fine specimen was purchased from a private owner in 1970 by the Federation of Maine Mineral and Gem Clubs, and was presented to the Maine State Museum.

BERYL:

Beryl [$Be_3Al_2(Si_6O_{18})$] has been found at many localities throughout the western Maine "pegmatite belt". Single crystals up to about 40 feet in length have been found (at the Bumpus Mine, Albany). Gem quality beryl, however, is somewhat more restricted in its distribution, and size of a gem-quality specimen rarely if ever exceeds a few cubic inches.

The most abundant gem variety of beryl to be found in Maine is the popular blue-green "aquamarine", whose color is thought to be due to the presence of iron (ferrous and ferric) impurities and/or to the presence of "color centers" — submicroscopic defects or "holes" in the crystal structure which selectively absorb certain colors or wave lengths of light.

Less familiar, but equally beautiful are pink "morganite", golden "heliodor" and colorless varieties of beryl. Emerald, the extremely rare deep green variety of beryl has been reported

at a number of Maine localities including Baldwin, Fryeburg, Newry, Paris, Peru, Stoneham, and Topsham, but there are no documented specimens of Maine emerald known to exist in any museum or private collections. It is probable that reports of emerald occurrences (most of which date from the 19th century) are the result of mistaken identity, since most of the reported discoveries of emerald were made in localities where dark green tourmaline (similar in color and equally beautiful, but far less rare) is known to have been found.

The finest, and perhaps the largest single mass of gem-quality beryl ever found in North America was a 2-inch by 4-inch crystal picked up by a farmer near Stoneham's Sugar Loaf Mountain in 1881. The single specimen is said to have produced over 400 carats of cut gems, including an oval-faceted gem of 133 3/4 carats. This superb faceted stone was displayed at the Columbian Exposition in Chicago in 1892-3. In 1894, when a number of prominent businessmen led by Marshall Field established a permanent museum of natural history in Chicago, this Maine gem was donated to the museum by Mr. Harlow N. Higinbotham. The stone is still a highly prized part of the collection of Chicago's Field Museum of Natural History.

A large (ca. 10" x 10") beryl crystal mined at Mt. Mica near Paris Hill in 1951 shows much gem-quality material, and may contain a total volume of gem beryl greater than that of the famous Stoneham crystal; though the greenish color of this crystal is considered to be inferior to the blue-green hue of the Stoneham crystal. This large crystal is presently in the collection of Maine's State Museum, a gift of the Federation of Maine Mineral and Gem Clubs.

QUARTZ FAMILY GEMS:

Quartz [SiO_2] is the most abundant mineral to be found at the earth's surface, occurring in most common varieties of rocks and in nearly all sands and gravels.

Quartz generally takes the form of light grey grains or masses that are cloudy in appearance due to the presence of minute fractures or other crystal flaws. But occasionally, chemical impurities may produce unusual and attractive colors, or geological conditions may allow the formation of unflawed masses or crystals that have all the essential characteristics of gemstones. The quartz family includes a greater range of colors and a greater number of distinctive gemstone varieties than any other comparable mineral group.

"Rock Crystal" is a colorless variety of unflawed quartz. Gem-quality specimens have been found at many Maine localities in the "pegmatite belt" of Oxford, Androscoggin and Sagadahoc Counties, among the volcanic rocks of coastal Washington County, and elsewhere in ledges, roadcuts, gravel pits and stream beds too numerous to mention. Rock Crystal is seldom used in jewelry, but it is often used as practice material by individuals learning the art of gem cutting. (continued)

The great range of color shown by Maine's quartz family gemstones is illustrated by these specimens which range from lavender "amethyst" (right) through yellow-brown "citrine" (center) to grey-brown "smoky quartz" (left).
These specimens include material loaned from three private collections.

QUARTZ: (continued)

"Smoky Quartz" ranges in color from pale grey through brown to nearly black. The "smoky" hue is thought to be caused by minute amounts of aluminum and lithium impurities, while the depth of color is thought to be intensified by exposure to natural radioactivity. Fine gem-quality specimens have been found at many localities, chiefly within the western Maine "pegmatite belt".

"Rose Quartz" is a pink variety of quartz whose color is thought to be due to the presence of manganese or titanium impurities. Gem quality rose quartz has been found at many Maine localities, and particularly among the pegmatites of western Maine; but the most remarkable concentrations of rose quartz have been found in pegmatites of the Albany area. The Bumpus Mine alone is said to have produced over 300 tons of rose quartz; and the Wardwell and Scribner Ledge Mines have likewise yielded substantial quantities. Well-formed crystals of rose quartz are quite rare, however, having been found at only a few localities in the world. Among these localities are Plumbago Mountain at Newry, Mount Mica near Paris Hill, and Red Hill at Rumford. There are undoubtedly thousands of rose quartz gemstones that have been cut from Maine material, though many of these, cut as "practice pieces" by novice lapidaries, are of unknown size or quality.

"Amethyst" is a pale lavender to deep purple variety of quartz, whose color is thought to be produced by minute amounts of an iron (ferric) compound. Though not of widespread occurrence in Maine, gem-quality amethyst has been found at several localities including the Colton Hill—Deer Hill area in Stow, the west slope of Pleasant Mountain in Denmark (which is said to have produced many deep purple stones, including one, formerly in the collection of Kaiser Wilhelm, that was reportedly appraised for $10,000), and a sizeable area in Otisfield, where plowing has revealed amethysts which may have been broken from ledges below the surface, or which may have been carried by glaciers from areas farther to the north.

"Citrine" is a pale to golden yellow variety of quartz. Its color is probably due to the presence of minute quantities of iron (ferric) hydroxide. The color of citrine can be produced by heat-treating of amethyst at temperatures of 550°C. or greater; and it is possible that some natural citrine may have been produced in the same manner. It is perhaps the least common variety of gem-quality quartz to be found in Maine, though collecting localities are reported at Auburn, Buckfield, Greenwood, Parsonfield, Topsham and Wales. Especially fine specimens have been collected at the Keith Quarry at Auburn.

"Chalcedony" is chemically identical to quartz in that it is composed entirely of silica [SiO_2]; but it has a much finer-grained texture made up of microsopic or submicrosopic crystals. Varieties of chalcedony found in Maine include "jasper" (opaque red, yellow or brown), "prase" (dull green), "chrysoprase" (translucent green), "carnelian" (translucent red), "bloodstone" (green prase with red jasper spots), and "agate" (banded or variegated). The finest chalcedony specimens are found among the volcanic rocks of Washington County, and in beach gravels resulting from the weathering and erosion of these rocks by ocean waves. Other occurrences are widespread, however, and gravel deposits or streambeds throughout the State have been cited as productive collecting localities.

The light-colored specimen in the background is a 54-pound crystal section mined at Lord Hill, Stoneham, in 1966. This specimen, from the collection of the Harvard University Mineralogical Museum, is believed to be the finest large crystal specimen of topaz ever found in North America.

Foreground specimens (left to right) include:

a) a white or colorless crystal; from the collection of the American Museum of Natural History.

b) a light blue crystal mined at Brunswick; from the collection of the Harvard University Mineralogical Museum.

c) a light blue specimen found at the Fisher Quarry in Topsham in the early 1900s by a team of Harvard University mineralogists. Its peculiar irregular shape is the result of etching by corrosive fluids or gasses following its formation. The specimen is from the collection of the Harvard University Mineralogical Museum.

TOPAZ:

Topaz [$(Al_2SiO_4\ (F,OH)_2]$ is one of the lesser-known Maine gems, although it has been found in substantial quantities in the State. Unlike the more popular yellow or sherry-colored topaz that is most frequently seen in jewelry, Maine's topaz tends to be light blue, blue-green, or colorless.

The largest single topaz crystal known to have been found in Maine was mined in 1966 at Lord Hill, Stoneham. It weighed approximately 54 pounds, and measured about 9 inches in length, 11 inches in width and 3 inches in thickness. Smaller, but more flawless specimens have also been found at Lord Hill and at the Fisher Quarry in Topsham.

An outstanding assemblage of Swift River gold, representing the results of some twenty years of collecting, was recently presented to the Maine State Museum by Mr. Carl Swantee of Livermore Falls. The largest piece shown here weighs 18.5 grams, and is believed to be the largest gold nugget ever found in Maine.

GOLD:

Gold may well have been the object of more human effort than any other mineral. Gold of course is a metal and, as such, it does not conform to the strict definition of a gemstone. Nevertheless, the mining and shaping of gold and that of gemstones are intimately related in terms of their eventual incorporation into finished items of decorative jewelry.

Maine is not particularly noted as a gold-producing State; yet, according to a prospectors' proverb "gold is where you find it", and many prospectors have found it in Maine.

The bed of the Swift River in the Byron-Houghton area is the best known gold-producing area in Maine; but the occurrence of the metal (in minute amounts) is so widespread that there is probably no stream in the State that has not produced or would not yield at least a tiny fleck of gold to the persistent panner. Larger (i.e. from pinhead to peanut-sized) nuggets are far rarer, being reported only from the Swift River in the Byron-Houghton area, from streams in the Rangeley area, from the Aroostook River at Mapleton, and from an unspecified locality at Dennistown. (continued)

Even these few "richer" deposits exist only because of the concentrating effect of running water which erodes gold-bearing rocks, wears away the more brittle stone and accumulates the heavy malleable metal in stream bed gravels. The scores of attempts that have been made to bypass the helpful work of streams and to mine profitable quantities of gold directly from the rocks of Maine have been of no avail, except perhaps for those who collect the worthless stock certificates of defunct Maine gold mines.

An outstanding display of Maine gold specimens, including what is believed to be the largest single gold nugget ever found in Maine, is presently in the collection of the Maine State Museum; the gift of Mr. Carl Swantee of Livermore Falls, who panned this material from the waters of the Swift River over a period of more than 20 years.

MISCELLANEOUS GEM VARIETIES:

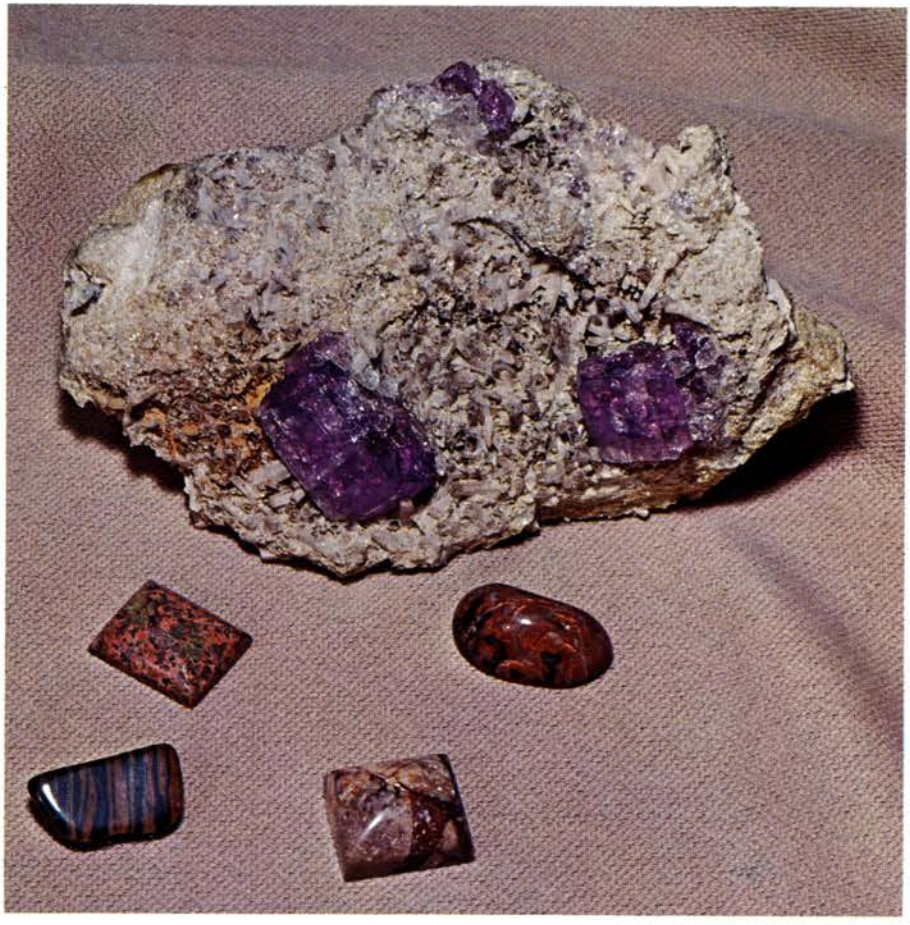
In addition to the better known gemstones found in Maine, a number of other minerals, including both common and rare varieties, are occasionally found as unflawed specimens whose color, transparency and durability make them legitimate gemstone varieties.

Amblygonite, pollucite, chrysoberyl, beryllonite and phenakite are among the rarer minerals that have occasionally been cut as gems.

Garnets are a fairly common rock-forming mineral in Maine; but most Maine garnets are too badly flawed by internal fractures to be of gem quality. A few exceptional specimens, however, have been reported from Brunswick, Buckfield, Newry, Peru, in gravels along the Medomak River, and elsewhere.

Apatite is a mineral found at a number of localities scattered throughout the "pegmatite belt" of western Maine. It has been found in a variety of colors including blue, violet and deep purple. Some of the dark purple crystals, as found at the Harvard, Tiger Bill, and Waisanen Mines of Greenwood, the Hibbs Quarry at Hebron, and the mines of Mt. Apatite at Auburn, are of a color and clarity that would make them prime candidates for the "gemstone" label. Unfortunately, however, the hardness of apatite is not sufficient to maintain the beauty of a cut stone subjected to daily wear as jewelry. The few specimens of Maine apatite that have been cut and polished as "gems" are intended as display specimens only.

A number of relatively abundant rocks and minerals (ranging from the lavender lepidolite mica of some lithium-bearing western Maine pegmatites to beach and stream pebbles of relatively common rocks) have been cut and polished to attractive forms for use in lapidary displays or as "rock jewelry". Those lapidary enthusiasts who cut, polish and avidly collect such specimens are apt to insist that they, too, are "gemstones" even though they may not conform to a dictionary definition. Beauty, after all, is in the eye of the beholder; and there is enough beauty in the rocks and minerals of Maine for all to behold.



The specimens illustrated here include crystals of purple apatite in pegmatite matrix (background) collected at Mount Apatite in Auburn, from the collection of the Harvard University Mineralogical Museum; and (foreground) specimens of polished agate and granite from various Washington County localities, from a private collection.

MAINE'S "LOST" GEM MINES

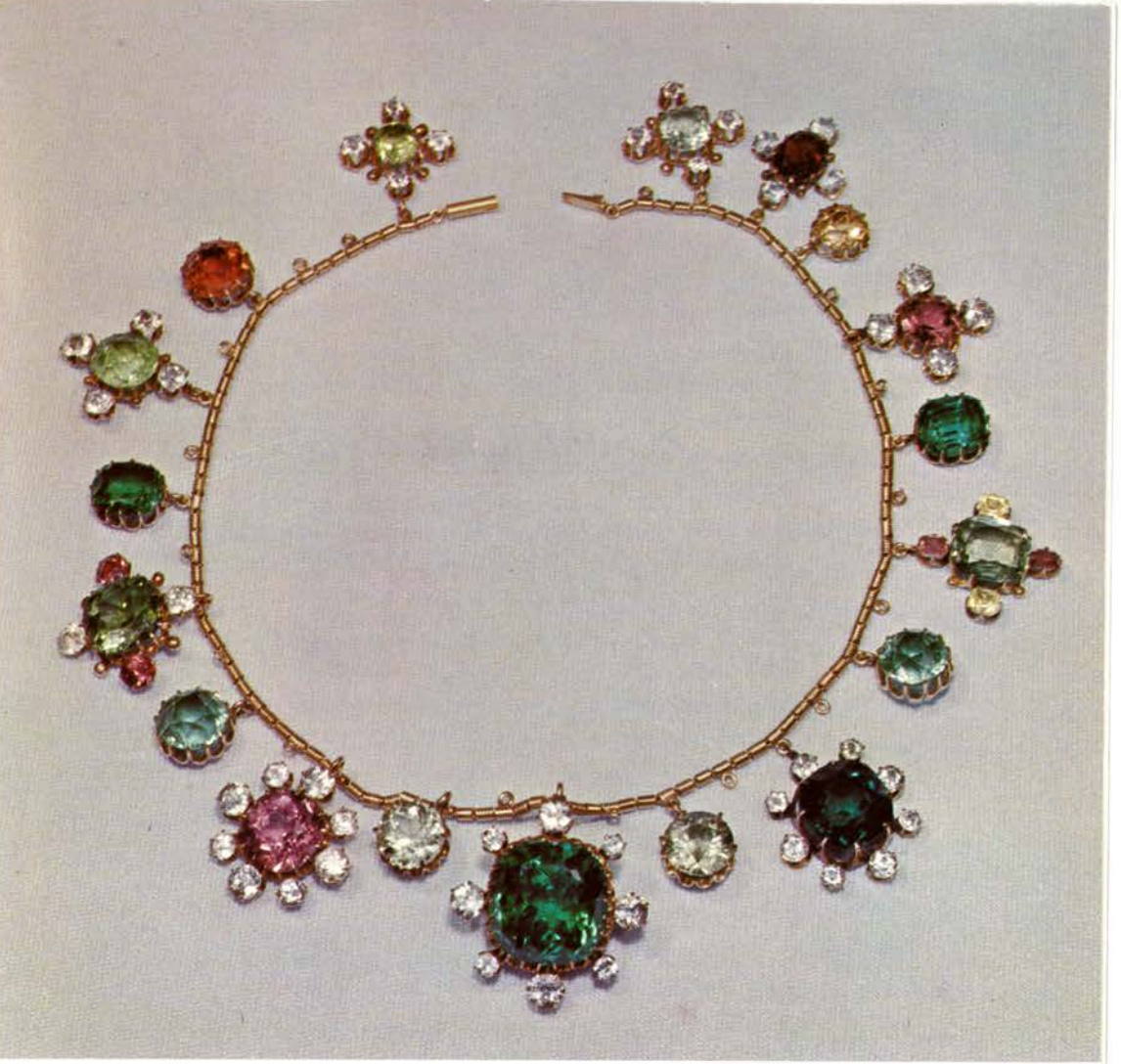
No account of spectacular and valuable mineral occurrences is complete without some mention of "lost" localities to intrigue the would-be treasure hunter; and Maine is not without at least a sampling of such tantalizing mysteries.

Although there are hundreds of gemstone localities in Maine which are known to many collectors and recorded in published guidebooks, there are others whose whereabouts remain shrouded in secrecy — never known to more than a few individuals, and perhaps passing back into the realm of the lost with the death of these individuals.

Many stories are told of gemstone treasure troves among the hills and forests of Maine — discovered by accident; left "temporarily" while the finder went in search of tools, containers, or helpers; and never again located despite lifelong efforts. Some of these tales can doubtlessly be dismissed as apochryphal, yet others seem to ring true; and a few are even supported by tangible evidence in the form of specimens.

No less a collection than that of the U.S. National Museum of Natural History includes at least three specimens that appear to represent "lost" localities. One such specimen is a fine aquamarine crystal that is labeled "Edgecomb, Maine", though no such gem beryl occurrence at Edgecomb is reported in published descriptions of Maine's mineral localities. Similarly, an excellent specimen of chrysoprase from "Greenwood, Maine" and an outstanding colorless topaz crystal from "Hebron, Maine" appear to be mineral orphans, with no reported quarry, prospect, or ledge outcrop to claim them as its offspring. Conceivably these and other "orphan" specimens may be merely mislabeled as a result of a clerical error, or as a result of misinformation furnished by a seller who wished to keep his source a secret. Yet these are among the magnets that lure thousands of collectors each year in search of new localities and new specimens that may earn a permanent niche in the proud and growing panoply of "Maine's Gems and Gem Minerals."

From a purely scientific point of view, the likelihood of important new gemstone discoveries is an excellent one; for the bulk of Maine's bedrock, even in known gem-producing areas, remains unexplored — shrouded by a blanket of soil and rock debris left behind by melting glaciers thousands of years ago. This blanket is being pierced with increasing frequency as excavations are dug for building foundations, wells and roadcuts. New rocks, new minerals, and perhaps new gemstones are being exposed daily to those with the patience to look and the knowledge to recognize what they see.



HAMLIN NECKLACE:

One of the most unique jewelry items to have been made from Maine gemstones is this piece, featuring a total of 70 tourmaline gems mined in the mid to late 1800s at Mount Mica, near Paris Hill. The piece, believed to have been designed by Mr. Augustus C. Hamlin (long an owner, operator and promoter of the Mount Mica mine) has a number of empty attachment loops where additional stones may once have been placed. The presence of such additional gems, however, would have given the piece an extremely crowded appearance unless gems were placed alternately on the inside and outside of the gold chain — an extremely awkward arrangement if the piece were to be worn as a necklace. This observation has led to the suggestion that the piece may have been originally intended as a commercial display, from which individual gems or gemstone groups might be selected by a customer, removed, and made into pins, pendants, etc.

Perhaps the single outstanding stone in the "necklace" is its centerpiece. This magnificent green stone, weighing 34.25 carats, was mined in the 1880s. It may well have been one of the Mount Mica gems exhibited at the World's Fair in Paris, France, in 1888.

The "Hamlin Necklace" was presented to the Harvard University Mineralogical Museum in the 1890s, by Mr. A. C. Hamlin. It is not known to have been displayed in Maine prior to the "Maine Gems and Gem Minerals" exhibit at the Maine State Museum.

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For a far more comprehensive listing of publications dealing with Maine's gem minerals, and individual collecting localities in Maine, the interested reader is referred to the indeces (under such index headings as "Economic Geology", "Mineralogy" "Mineral Collecting", and "Pegmatites") in the Bibliography on Maine Geology (1836-1957) and the Revised (and up-dated) Supplement to this bibliography, published in 1958 and 1967, respectively, by the Maine Geological Survey in Augusta, Maine.

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Mr. Carl Swantee, Livermore Falls

Mr. and Mrs. Nestor Tamminen, Greenwood

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